



DRAFT MEETING MINUTES

HANFORD ADVISORY BOARD (HAB)

Tank Waste Committee (TWC)

August 11, 2021

Virtual Meeting via Microsoft Teams

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This is only a summary of issues and actions discussed at this meeting. It may not represent the fullness of represented ideas or opinions, and it should not be used as a substitute for actual public involvement or public comment on any particular topic unless specifically identified as such.

Opening

Ruth Nicholson, HAB Facilitator, welcomed meeting participants and notified the participants that the meeting was being recorded.

Gary Younger, US Department of Energy (DOE), announced that this meeting was being held in accordance with the Federal Advisory Committee Act.

Bob Suyama, Benton County and TWC Chair, provided an overview of the meeting agenda and invited committee member announcements.

Susan Leckband, Washington League of Women Voters, urged members to attend the following day's Budgets and Contracts Committee (BCC) meeting, stating that nothing happens at Hanford without funding.

Bob introduced the meeting minutes from the May 2021 TWC meeting. The committee provided no comments and adopted the document.

Ruth announced that HAB committees and Issue Manager (IM) teams were established in Microsoft Teams, providing members discussion space to explore HAB and committee topics. Joshua Patnaude, HAB Facilitation Team, provided a short demonstration focusing on Teams navigation and functions.

Tank-Side Cesium Removal (TSCR) and Transfer Line

Janet Diediker, DOE, supported by the project technical lead, Dusty Stewart, DOE, provided a presentation Tank-Side Cesium Removal (TSCR) demonstration subproject. Janet provided project status, noting that construction was complete and transfer lines from the AP Tank Farm to the Waste Treatment and Immobilization Plant (WTP) were installed. Notably, 3,000 feet previously existing lines were able to be reused, which resulted in significant cost savings. Operations and maintenance personnel were trained and operational acceptance testing waste complete. All that remained was turnover to operations following contractor and operational readiness assessments.

Janet provided an overview of how the TSCR system fit into the larger Direct-Feed Low-Activity Waste (DFLAW) project. The TSCR system was connected to three dedicated 1.2-million-gallon double-shell tanks (DSTs). Transfer lines between these DSTs and WTP would serve as a low activity waste feed directly to WTP and return secondary liquids to the tanks.

The TSCR process enclosure would contain all system components, including the three ion exchange columns, which would remove cesium from the waste stream, along with associated filters, piping, valves, and instruments. A separate control enclosure was available to house operators, who would be able to see inside the process enclosure through cameras. A nearby ancillary enclosure housed flushing and blowdown systems for the process enclosure. The process enclosure was a shielded facility while the control and ancillary enclosures were in a non-radioactive zone.

The ion exchange columns would run in a lead, lag, and polish configuration. They would run until breakthrough occurred—when a gamma detector read above a determined radiation level, meaning contaminants were no longer being captured. Filters would be replaced at this time. During pretreatment operations, tank waste would flow through the ion exchange columns at about five gallons per minute.

Regulatory Perspectives

Steve Lowe, Washington State Department of Ecology (Ecology), noted that he had been following the project and was pleased with the progress made. Referencing a similar project completed at the Savannah River Site, which treated 300,000 gallons of waste in 2.5 years, he wondered if the lessons learned from

that project were shared with the TSCR project. He also wondered how long it would take to treat the Hanford Site waste.

Janet stated that the team worked with Savannah River contractors to partner and share lessons learned, examining the differences between the two systems. Dusty contributed, explaining that they were on pace to be well ahead of WTP startup. They had empty tanks ready to fill, providing TSCR up to one million gallons of lead. He expected that they could process the entirety of tank AP-107 in nine months from startup, which would still lead WTP startup, providing a significant buffer. He noted that the volume processed at Hanford is very different from Savannah River and that the rate of five gallons per minute was tailored to this specific situation.

Committee Discussion

Vince Panesko, City of Richland, noted the history of the Hanford Site tank operations, remarking on the focus of getting cesium out to reduce heat. He noted that cesium has a relatively short half-life, meaning that it would not be as dangerous over a long period of time. Regarding the ion exchange columns, he expected that it would work well for liquids, but wondered how much solid material would go through there and how well it was filtered. Additionally, referencing the picture of hose-in-hose connections shown in the presentation, he asked how radiation would be controlled if they disconnected.

Janice explained that the picture was not accurate to the current situation, as the hoses have since been buried and connections covered by a four-inch shield box. In theory, they would never need to be disconnected, but were that to occur there was sleeving for protection. Dusty explained that there were two ten-micron filters in place, which were replaceable. Following significant testing at Pacific Northwest National Laboratory (PNNL) and 222-S Laboratory, the solids level was deemed permissible.

Shelley Cimon, Columbia RiverKeeper, wondered if the polish column was capable and intended to capture breakthrough material. Dusty confirmed that the third column, the polish column, was turned on when breakthrough was detected so the waste would run through all three. Typically, the majority of cesium is captured in the first two columns.

Gerry Pollet, Heart of America Northwest, asked about feed volume, noting that the presentation referred to moving one million gallons of supernatant prior to DFLAW startup. He asked about the current contents of AP-107 and how much of that content would be treated through TSCR prior to WTP startup. Additionally, he asked if there was anything other than supernatant in AP-107 that would need to be processed and what sequencing for treatment might look like. Dusty confirmed that the solids were almost entirely removed from AP-107; he estimated about 99.5% supernatant content. He expected that filters would catch any remaining solids. Anything other than cesium that was captured would instead go to tank AP-106. He explained that waste would be processed using a batch system and alternate which tanks are filled with qualified waste from other sources, so the same tank was not filled continuously. Waste from other sources was being prequalified so could be transferred to AP-107 when additional feed was needed.

Dan Solitz, Oregon Hanford Cleanup Board, asked what the feed rate for the melter from AP-106 would be, noting that he was curious about continuity as WTP ran a batch continuous process. Dusty was not able to answer, as that was out of his scope. It would need to be answered by someone at WTP. Janet suggested that Tom Fletcher or Matt Irwin would be reasonable people to contact to resolve that question and can be reached by sending the documented question through their communications group. Steve Lowe contributed, stating that he saw a figure for that: 95,812 gallons per month, per melter.

Jeff Burright, Oregon Department of Energy, asked if the Low Activity Waste (LAW) Facility would start both melters simultaneously or in sequence. Janet expected that they would be in sequence but noted that question would be best answered by WTP project personnel. Jeff provided a follow up question: should TSCR prove successful, but melter throughput outpace that of TSCR, how long would it take to implement a second TSCR system? Janet explained that, in an independent alternative analysis, TSCR was one of two options developed for waste pretreatment. The other was a skid-mounted modular system that would serve a similar purpose. After one year of running TSCR, there would be another alternative analysis performed. Work was being done to add additional pre-treatment capacity, but it would likely not be the same as TSCR. The team was already working with engineering for things that might be done differently or better. The timeframe for the additional system was not yet known. She reiterated that the TSCR system has a one-million-gallon lead on DFLAW startup, which would provide ample time to evaluate need and construct an additional system.

Next Steps

Bob Suyama stated his appreciation for the presentation and hoped for a follow up after operations begin. Janet stated that the best timeframe for that would likely be in January or February of 2022.

Susan Leckband suggested a potential action beyond additional updates, such as a letter of support. Bob stated support for the idea but wanted to see the results of the readiness review in January first.

Tank Integrity and Potential Dome Collapse

Bob Suyama introduced an emerging topic of concrete spalling in relation to tanks and the concern of eventual tank dome collapse that could result, stemming from a tank integrity panel annual meeting. Jeff Burright explained that as concrete falls off the walls, rebar is exposed, and as rebar is exposed it rusts, which in turn further accelerates spalling. The conversation examined potential consequences of that. Though it did not sound to be an immediate concern in the panel, calculations were continuing. They expected that the effect would be localized, as soil would collapse in with the dome and prevent contaminant release into the atmosphere. The potentially greater concern than the potential collapse itself, in Jeff's opinion, was how waste could be retrieved once that happened. He suggested checking in on the subject for results from the ongoing analysis.

Gerry Pollet noted that he did not want to assume that soil collapse with the tank dome would prevent release, as that did not fit with his recollection of previous studies performed in the 1990s related to failure of a tank dome. Susan Leckband contributed, noting that, as tanks are decades beyond their design life and expected to remain in that condition for the foreseeable future, it would be good to get assurance that dome collapse would not be a significant problem. Additionally, it would serve as an opportunity for DOE to tell the public if it thinks it would be safe until waste processing as tank integrity is critical to successful Hanford cleanup.

Vince Panesko noted additional studies performed in the 1990-1995 timeframe—not published and considered to be controversial at the time—that considered the option of just leaving tanks in the ground. Additionally, they examined injecting material to stop leaking tanks, and showed that they could potentially inject material from the sides. Regarding the potential dome collapse, he noted that there was air in the tank that needed to be released, but the materials within the tank would be somewhat protected by material that collapsed into the tank. Safety analyses he recalled examined many such scenarios and showed little release, if any at all.

Bob determined that the topic should be further examined under their overarching Tank Integrity topic. He asked Gary Younger to touch base with those on the call and determine when the best time for a related briefing would be.

Direct-Feed Low-Activity Waste (DFLAW) Critical Path Update

Roger Gordon, DOE, provided a presentation on the DFLAW critical path schedule that consisted of important upcoming milestones and dates.

He stated that the LAW facility was the critical path for operations and provided an explanation for the primary components within that path. He noted that there was room for slip or delay in the schedule, without impact to the expected end date.

The Liquid Effluent Retention Facility (LERF) and Effluent Treatment Facility (ETF) were on schedule with no delays. The Integrated Disposal Facility was planned to be finished just in time to support DFLAW operations. Waste Incidental to Reprocessing was going through the concurrence process at DOE headquarters.

The Hanford Mission Essential Services Contract items did not directly tie into the startup of the LAW facility but would support the mission.

Regulatory Perspectives

Steve Lowe, Ecology, stated that it looked like a lot of parts and pieces were coming together well and had no particular concerns.

Committee Discussion

Bob Suyama noted that it sounded like the project had overcome the challenges associated with COVID-19 to that point and was glad to see it was on schedule. He asked what the Tri-Party Agreement (TPA)-mandated date was for completion. Roger stated that the TPA date was beyond the completion date but did not know the exact date immediately. He noted that COVID-19 presented challenges, but by focusing on priority work items, they were able to mitigate impactful delays.

Vince Panesko noted that he has been involved with tank waste chemistry since the 1960s. Recently he saw a permit change for the effluent treatment system that noted the melters would be producing off gas with acetonitrile beyond allowable discharge limits, and as a result would require steam strippers. He was concerned that the change might have been an unplanned aspect coming up late into the project. Because Roger was primarily involved in the engineering-procurement-construction aspects of the project, he was not prepared to answer questions related to tank waste chemistry.

Steve followed up on Vince's concerns, noting that a system of this type and complexity was something no one had a depth of experience with and wondered if it could be expected to perform as planned. Regarding the schedule, Steve noted that there was a leak detection path that looked to be completed in December. From an Ecology perspective, that addition would require a permit, which he had not seen. Roger stated that he would have to take a note back on that concern. Steve also noted that he did not see the LERF basin on the schedule, which would be required to handle WTP effluents. Roger stated that he would need to confirm with the schedulers but believed that it was scheduled post-winter.

Dan Solitz was curious if the test runs for the melters would use simulants, and if so, what they would contain. Roger confirmed that the cold commissioning would use simulants that were not hazardous; the results would be bound for a commercial landfill. Dan suggested that a glass log produced during cold

commissioning may be worth saving as a demonstration piece rather than sent for disposal. Roger agreed to discuss the idea with Tom Fletcher, DOE.

Bob noted the tabs on the schedule exhibit. He understood that they were looking at an overview and noted that there might be more information to look at in the future, should they find a problem. He thanked Roger for the presentation and noted that he would like to follow the topic periodically to see how things were going. Roger thanked the committee for inviting him to make the update.

Committee Business

Ruth Nicholson introduced changes to the fiscal year 2022 draft work plan since the prior iteration. Bob Suyama noted that this was the TWC's last chance to make changes before review and approval during the September Board meeting. The committee made minor sub-bullet additions in relation to the tank closure entries.

Bob noted that he hoped to brief the HAB on the definition of high-level waste (HLW) and its impacts during the following Board meeting in September of 2021. He wanted the Board to go on record providing public input on the topic.

Gerry Pollet wanted to issue advice after a discussion of tank B-109. He felt it as urgent to inform the Board that the leak was present and that every month of delay was a significant harm and of considerable public concern that nothing was happening. Bob was concerned that due to timing of the meeting, it would be difficult to prepare draft advice for the Board but hoped to consider the option further later in the meeting.

Bob introduced the TWC-specific work plan for fiscal year 2022, noting that there were now four committee meetings in the year, down from prior years' numbers, and as a result the committee needed to know well in advance what it wanted DOE briefs on, as DOE would require significant lead time to prepare. Ruth provided an overview of the document contents and layout. Committee members made clarifying points and changes to the document that Ruth would implement after the meeting.

Jeff Burright made the note that a National Environmental Policy Act (NEPA) environmental assessment related to the test bed initiative was expected soon. He was unsure if the Board would be able to pursue that topic due to timing, but wanted the note made.

Susan Leckband stated her dissatisfaction with quarterly meetings, explaining that the reduced number of meetings did not allow the committee to accomplish its work or become sufficiently informed on Hanford Site-related issues and concepts. She suggested that the Executive Issues Committee develop advice for DOE Environmental Management (DOE-EM) regarding the issue. Several members expressed their concurrence.

Jeff considered the option of having IM teams assigned to each TWC topic. Shelley agreed with the idea, as IM teams could take questions or actions away from each meeting and make more effective use of the available time. Bob thought they could send out an email to check for interest in additional IM teams.

Open Forum: General

Marissa Merker, Nez Perce Tribe, stated that she was unclear as to why the number of meeting numbers was reduced. It seemed, from her personal perspective, that DOE was decreasing the platform of engagement with public and stakeholders, while antithetically looking to increase diversity of the Board. Gary Younger provided perspective. He stated that the number of meetings provided was based on the ability of his staff to support them; staff had been significantly cut over the last few years. He wanted to queue up as many meetings as he could support and was able to deliver; if he was able to support more

meetings, he would. The calendar was developed with the full number of meetings he was able to effectively support with the available resources, and if possible, in the future, he hoped to increase that number.

Regarding diversity efforts, Gary explained that the order to make Site-Specific Advisory Boards look more like the communities they represent was an order from the White House. The HAB presently looked good for representation in some areas, but not in others. There was a request to increase Hispanic representation and Native American representation not associated with tribes, as well as bring a younger population to advisory boards. The changes made to the HAB membership packet were expected to be in review at the Secretary of Energy's office at the time.

Susan Leckband, in response, noted that she believed that diversity is valuable, but it seemed counterproductive to increase the Board's size while reducing meeting time. She stated that HAB members cannot become adequately educated or informed in the limited time provided.

Gary provided an additional detail: the HAB was typically running at a 25-30% absentee rate. Many of the stakeholder groups were not being represented by their own appointed members, and he hoped to gain more attending members in that regard. He stated that the Committee's help in rectifying that issue would be welcome.

Gerry Pollet asked for an explanation as to how DOE was going about the member selection process and honoring the charter of the Board, where members of the Board represented their entities. He wanted to understand how DOE was going about recruiting those representative interests. Gary noted that these issues were not something he was initially intending to address in such depth, as they were out of alignment with the TWC agenda and asked Bob's opinion on continuing the discussion. Bob stated that the topic seemed like a discussion for the Board at large and should be pursued in the next full Board meeting. He suggested that Gerry's question could be a starting point for that discussion.

Open Forum: Reflections on the National Academy of Sciences meeting on supplemental treatment of Low-Activity Waste (LAW)

Jeff Burright provided background on the National Academy of Sciences study. It began in 2017 and examined options for supplemental treatment of LAW that the current vitrification facility was not sized to treat in time and in an Environmental Impact Statement from 2012. The initial study looked at three primary technologies: grout, glass, and steam reforming. The study concluded that, though much useful information was learned on the technologies, there was still significant uncertainties that limited its ability to make a recommendation.

The results did show some useful information. It appeared that the cost estimates were solidified through experience. It showed that grout was cheaper than vitrification and a less complex waste form to create, though had additional steps in waste preparation.

Following the study conclusion, Congress commissioned a second study, which was more focused and made additional strides in helping regulators to frame discussions. It examined potential disposals sites for waste produces from the treatment options and took an additional look into pretreatment requirements. Alternates examine included:

- A single grout plant with on-site disposal at the Integrated Disposal Facility
- A single grout plant with off-site disposal
- Separate grout plants with both on- and off-site disposal
- Individual grout plants for groups of tanks
- Giant grout vaults, like those at Savannah River

The study effectively examined grout from all perspectives and the tradeoffs of each configuration. It also looked at hybrid options to consider the most efficient use of grout in conjunction with vitrification. Jeff had examined a previous grout program in the 90s that experienced challenges ultimately resulting in its failure. He hoped to see it addressed in following meetings.

Jeff noted that there was another public meeting scheduled in approximately one month, and each public meeting allowed for public comment. He expected the first draft of the report in December 2021, and a following draft in August 2022 that took comments from the first draft into account. The final public meeting would be November of 2022, and the final report would be released that same month.

Jeff suggested the committee watch the recordings of the previous meetings, which were available online.

Bob Suyama asked if there was a driver that would force the local or national DOE to make decisions based on the findings of the report. Jeff expected that the National Academy of Sciences would only provide information and would not make any specific recommendations.

Dan Solitz asked if there was a technical readiness examination of grout. Jeff stated that there was, as PNNL had an active grout research program and previously provided a presentation on the subject to the Board. It looked at anticipated waste streams from off gas, what would need to be done with the grout, adjustments of grout chemistry for long-term stability, and other aspects.

Open Forum: Single-Shell Tank Leaks and Tank B-109

Bob Suyama introduced the plan for a committee member-led presentation. They would discuss the leaking single-shell tank (SST) B-109. In April, DOE informed the HAB that it determined that the tank was leaking interstitial liquids. The approach was to effectively leave it as-is, with the expectation that the downstream pump and treat system would handle the issue. Bob explained that the approach generated HAB concern.

Ruth Nicholson stated that she would be capturing concerns, solutions, and other data identified in the discussion. The results of that exercise are provided in *Appendix A*.

Jeff Burright offered framing for the discussion. They wanted to determine what the HAB hoped to be accomplished while recognizing that they were having a parallel discussion to regulatory decisions. The committee had the opportunity to examine lessons learned and determine options for response that aligned with HAB values, which may be helpful for future leaks. He noted that B-109 still has 13,000 gallons of leakable liquid in it at the time and was continuing to leak at an unknown rate, with potential for more liquid coming into the tank. There was a limited time to respond.

Gerry Pollet, supported by his students from Seattle University, provided a presentation on their proposed actions in response to the leaking single shell tank B-109. He stated that the big takeaway was, first, that much more waste had leaked than was announced and that the leak occurred years before announcements. Second, and most importantly for policy, was that there was a legal requirement to remove waste from the tank, and time was of the essence.

Leading the presentation was an acknowledgement that discussions were centered around ceded lands from native peoples.

Gerry and his students read and explained the slides, starting with the timeline of events. They stated that in April of 2021, DOE announced the B-109 leak. It was later learned that the leak was greater in magnitude than was reported. They stated that DOE falsely implied that remaining waste would be handled by pump and treat systems, as they were incapable of catching all contaminants, which would

reach both groundwater and the Columbia River, and that the leak would continue longer than the pump and treat could be feasibly operated.

It was stated that the Washington Governor Inslee had announced a “Zero Tolerance Policy” for leaks following a previous tank waste leak announcement. B-109 is located closer to the river than the previously announced leaking tanks.

The presenters provided data that suggested that the leak should have been suspected as early as 2016 and should have been certain of in 2019. Gerry explained that the tank contents were seen trending upwards in volume until 2018 as a result of the hygroscopic property of the waste, resulting in additional moisture being drawn into the tank. He believed that DOE’s report on quantities leaked did not account for the additional moisture liquid content.

He stated that when DOE’s leak assessment began, Gamma Borehole logging should have been used immediately as it would definitively determine leak status, however, the assessment was not requested until March of 2021. The logging data confirmed the leak with significantly high readings on the south side of the tank.

Gerry’s students explained that DOE and Ecology’s approach to the leak should be unacceptable to stakeholders, as it demonstrated acceptance of soil contamination; was an affront to Tribes; demonstrated lack of urgency or concern; dismissed regulatory requirements; and did not acknowledge that contamination would remain in groundwater for thousands of years.

It was explained that there were several legal avenues to immediate or short-term response. Washington State held authority to order DOE to remove leakable liquid and waste. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource and Conservation Recovery Act (RCRA) offered options for response.

Gerry proposed immediate action be taken on B-109 including installation of a leak detection system; removal and disposition of interstitial liquid waste; and monitoring for effectiveness of leak mitigation efforts. He suggested that the In-Tank Pretreatment System (ITPS), developed as part of the Test Bed Initiative program, could be deployed for immediate use to overcome the lack of existing infrastructure around B-109. He provided an overview of the system functions with conceptual deployment visuals.

Further, Gerry suggested a framework for potential HAB advice, which would state that tank leaks should not be ignored; tanks with evidence of leakage should have confirmatory action taken immediately; leakable liquids should be removed from tanks as quickly as possible where there is evidence of leakage; and that DOE should proceed to remove liquids from B-109 using his previously proposed options.

He reiterated that removing waste from B-109 was the only effective method of leak mitigation and the legally required course of action to take. Further, he suggested that Ecology should take action to reflect Washington State’s “Zero Tolerance Policy” for tank leaks and legal requirements to empty leakable liquid.

Jacob Reynolds, “Non-Union, Non-Management” Employees, remarked that the presentation was excellent but raised questions and concerns with the information provided. He noted that care should be taken when calculating the volume and the porosity of the waste should be considered. In his own estimates, taking that into account, he ended up with DOE’s reported numbers. Additionally, Jacob asked if Gerry considered the RCRA organic aspect of the waste in his treatment option. Gerry stated that, regarding porosity, he used DOE’s porosity factor in estimating the leak volume and that the added waste from water infiltration each quarter was another factor in determining his number. Regarding RCRA

organics, Gerry referred to a slide in his presentation that provided a compliant treatment proposal, noting that Perma-Fix was a dangerous waste-permitted facility, which would allow waste reclassification after treatment.

Bob stated that he was impressed by the research conducted by Gerry and his students. He was curious about the tank leak in light of Governor Inslee's stated "Zero Tolerance Policy" and what, if anything, occurred in response to that leak. Gerry explained that in 2016 or 2017 an exhauster and ventilator system was used over the surface of the tank waste to dry supernatant and the top layer of drainable liquid, but nothing was done for lower layers. He noted issues that were observed with the system, such as uncontrollable air emissions, and the tank gaining water again when the system was shut down. Gerry stated that removal of the liquid is not only legally required, but also the better technical choice.

Bob asked how many other tanks were in a similar situation, noting a previous figure of 3.37 million gallons of leakable liquid in tanks across the site. Gerry stated that it is not a question of if a tank would leak, it was a matter of when. Considering the trends to that point, he expected that the next leak was possible in less than five years.

Ruth Nicholson announced that the meeting was nearing scheduled completion, noting that the committee needed to determine the next steps.

Jeff remarked noted potential options including letting the regulatory process go forward or providing options that the Board wanted to be vetted as options as part of the process. He was in favor of developing policy advice that talked about expectations for the regulatory process. He pointed out how useful exterior gamma logging was in leak detection and thought that it might be helpful if used earlier in that process. Additionally, he posed the question of what parties should be involved in the leak assessment process. Marissa Merker noted that that was a topic of importance to the Nez Perce Tribe Environmental Restoration and Waste Management (ERWM) program.

Bob stated that he felt advice was warranted but it needed to be at the policy level, advising what should be done when there is a leak, rather than stating what should specifically be done with B-109. Shelley Cimon thought the turnaround time for presenting draft advice at the September Board meeting might be too short. She considered that it could be framed by an IM team, then there could be a follow up request for a presentation on the specifics of tank leak response and the criteria for a response. Additionally, she considered another potential presentation on regulatory perspectives, exploring the question of "is doing nothing okay?"

Vince Panesko suggested that if the DOE representatives were to have given a similar do-nothing response in the 1980s, they would have been fired. He recalled a similar response from a contractor in that timeframe that did result in firing. He saw that the lack of response as a pattern of erosion of DOE concerns and values. He supported the HAB pursuing advice on the topic and felt it was a huge policy issue.

Gerry stated that the potential advice would not include debate as to whether there was a leak, as it was acknowledged by DOE. The advice would focus on regulatory process around suspected and confirmed tank leaks. The advice should emphasize that tank leaks are not to be ignored, monitoring should be implemented as a matter of policy where leaks are suspected, and that leakable liquids should be removed as quickly as possible and reported to the public. He felt that if the HAB did not act quickly, the regulators would continue to debate if there should be any response at all.

Gary Younger noted the limited meeting time remaining. He thanked Gerry for the information presented and reminded the audience that the presentation was a matter of opinion and was not technically vetted.

Next Steps

The committee discussed the potential for developing draft advice related to leak response framework or requirements at a policy level, with the B-109 leak as the catalyst for action. Gerry agreed to provide a starting point for the advice. The Tank Integrity IM team would determine if advice development was feasible prior to the next full Board meeting, based on the content Gerry was to provide.

Attachments

Attachment 1: Meeting Agenda

Attachment 2: Draft Meeting Summary for TWC May Meeting

Attachment 3: Getting Started with Teams Guide

Attachment 4: HAB Issue Manager Team List

Attachment 5: DOE Presentation - Tank Side Cesium Removal Demonstration Subproject

Attachment 6: DOE Presentation - Direct-Feed Low-Activity Waste (DFLAW) Critical Path Update

Attachment 7: FY2022 HAB Work Plan

Attachment 8: FY2022 HAB Calendar

Attachment 9: FY2022 TWC Draft Work Plan

Attachment 10: B-109 Fact Sheet

Attachment 11: B-109 Strategies

Attachment 12: Heart of America Northwest Presentation - B-109 Tank Leak and Response

Attendees

Board Members and Alternates:

Bob Suyama, Primary	Dan Solitz, Primary	Emmitt Jackson, Primary
Gerry Pollet, Primary	Jacob Reynolds, Primary	Liz Mattson, Primary
Shelley Cimon, Primary	Steve Anderson, Primary	Susan Coleman, Primary
Susan Leckband, Primary	Amber Waldref, Alternate	Jeff Burright, Alternate
Marissa Merker, Alternate	Tom Carpenter, Alternate	Vince Panesko, Alternate

Others:

Carrie Meyer, DOE	Deirdra Hahn, Ecology	Abigail Zilar, GSSC for DOE
Dusty Stewart, DOE	Diana McFadden, Ecology	Cerise Peck, HMIS
Gary Younger, DOE	Edward Holbrook, Ecology	Dana Cowley, HMIS
Geoffrey Tyree, DOE	Ginger Wireman, Ecology	Gabriel Bohnee, HMIS
Janet Diediker, DOE	James Alzheimer, Ecology	Patrick Conrad, HMIS
Joan Lucas, DOE	Jeffery Lyon, Ecology	Destry Henderson, WRPS

Roger Gordon, DOE	Steven Lowe, Ecology	Jordan Follett, WRPS
		Karthik Subramanian, WRPS
		Peter Bengtson, WRPS
		Li Wang, Yakama Nation ERWM
		Maxwell Woods, Oregon DOE
		Annette Cary, Tri-City Herald
		Kelsey Shank, TheEDGE
		Alex Goldman, Seattle University Law JD Candidate
		Henry Muetting, Seattle University Law JD Candidate
		Kylee McGill, Seattle University Law JD Candidate
		Mary Bent, Seattle University Law JD Candidate
		Daniel Baide
		Duane Schmoker
		Miya Burke
		Paul Noel
		Sophie Doumit
		Tracy Barker
		Scott Fillmon, HAB Facilitation Team
		Ruth Nicholson, HAB Facilitation Team
		Joshua Patnaude, HAB Facilitation Team
		Olivia Wilcox, HAB Facilitation Team

Note: Participants for this virtual meeting were asked to sign in with their name and affiliation in the chat box of Microsoft Teams. Not all attendees shared this information. The attendance list reflects what information was collected at the meeting.

Appendix A – TWC Committee – Discussion – Leaking Tanks & B-109 – 11 August 2021

PROBLEMS	SOLUTIONS	CONCERNS	DATA & INFORMATION
April – DOE informed HAB B-109 was leaking interstitial liquids	Ask for presentation on framework for responding to leaking tanks. What gets initiated when a leak is found? (DOE & regulatory perspectives) Is doing nothing OK? What triggers what?	Contamination from the tanks could reach the Columbia River in about 20 years	HAB is an information-poor stakeholder
Was B-109 leak reported at appropriate time? (Dec 2018-Mar 2019 data on changing interstitial liquid level)	Find a way to organize our thoughts & values (like the John Price Challenge in the past)	Bigger concern is the amount of liquid in all the tanks (not just B-109 or T-111). Estimate 3 million gallons of interstitial liquids.	Table of ideas from Jeff Burright. A potential frame?
Formal leak assessment appears to have been delayed	Ongoing regulatory process re: response to B-109	More tanks will start leaking in future years. Then what?	What are our values re: leaking tanks?
Was measurement of lost liquid accurate & reported accurately?	A CERCLA removal action?	An issue of key interest to the Nez Perce Tribe	Need to gather more data on the leak response process. What are the public policy values that drive decisions?
DOE didn't disclose Gamma Borehole monitoring information around the tank (which could indicate a leak). Compare 2002 data to 2021 data.	Treatment should meet RCRA standards	Allowing B-109 to continue to leak violates tribal treaty rights	How much liquid still in tanks in various forms now & how to figure out what the response should be to risk of SST leaks?
Belief that DOE & Ecology are using a “do nothing” approach	RCRA & state hazardous waste law allows the waiving of permit requirements in some situations (e.g. urgent removal action)	B-109 issue affects land & tribal treaty rights	3.37 million gallons of drainable interstitial liquid & supernate across all SSTs. Estimate 40+ years to go before the last SST is retrieved (based

			on Monthly Waste Tank Summary Report, May 2021)
No action has been taken to empty B-109 in light of the leak	Remove liquid from B-109	Much more waste has leaked from B-109	Be careful when you calculate the lost volume in the tank. Consider porosity of the waste.
No infrastructure in tank farm where B-109 is located	Removal of liquid is legal choice & technically preferred choice	Will B-109 continue to increase/entrain liquid despite the leak? Does this mean more will leak unless waste is removed?	Tank waste attracts moisture. Should be part of the calculation. Interstitial liquid appears to have increased over time. Intrusions?
	There is an available option for legal requirement to remove liquid from tank B-109	What happened re: T-111 leak? Why is it different than B-109? Is the governor's zero tolerance policy in effect?	How much liquid still in B-109? Is there liquid coming in? What is the limited amount of time to respond?
	DOE said pump & treat would handle B-109 leak		Was estimate of gallons leaked from B-109 accurate or understated?
	Remove cesium & transuranics via ion exchange with equipment inside the tank	T-111 leak – Washington governor said zero tolerance for leaks (8 years ago). Is there really a zero tolerance policy?	3,100 gallons leaked from B-109. (Is this understated? 5,700-10,000 gallons by another estimate)
	Opportunity to test if In-Tank Pretreatment System Design & off-site disposal will work	Consider RCRA organic component of tank waste	Gamma Borehole data. No difference on north side of B-109. Gamma levels appear to have migrated under the tank to high levels (Mar 2021)
	Use Test Bed Initiative as a solution?	What happens to the waste after the cesium, strontium & transuranics are removed?	Interested in the technology & its costs

	Need leak detection around tanks	How much contamination can pump & treat remove?	
	Contingency plan team should not just include DOE people	TBI is not a proven technology. Operates differently than TSCR (different filter & waste flows upward. TSCR is downflow.) Filtration may be problematic.	
	Potential HAB role in developing values, lessons learned, key questions. Try to understand options & how they relate to HAB values. Future advice?	Advice needs to be at the policy level	
	Advice – HAB expectations about regulatory process for B-109. Gamma monitoring & how it feeds into leak assessment process. Asking the right questions at the right time.	Do we have time to develop HAB advice? Topic needs to be framed by an IM team.	
	Draft HAB advice. Don't ignore tank leaks. Don't ignore evidence of leaks & not act. Need contingency plan for leaks. Remove leakable liquids from leaking tanks. Use SAFE technology (similar to TBI) to address B-109 – a demonstration.	Time-limited to follow draft advice development process for HAB (for September Board meeting)	